

Title (en)  
MAGNESIUM ALLOY, PREPARATION METHOD THEREOF, AND PROCESS FOR PREPARING WHEELS BY USING THE MAGNESIUM ALLOY

Title (de)  
MAGNESIUMLEGIERUNG, VERFAHREN ZU DEREN HERSTELLUNG UND VERFAHREN ZUR HERSTELLUNG VON RÄDERN UNTER VERWENDUNG DER MAGNESIUMLEGIERUNG

Title (fr)  
ALLIAGE DE MAGNÉSIUM, MÉTHODE DE PRÉPARATION DE CELUI-CI ET PROCÉDÉ DE PRÉPARATION DE ROUES EN UTILISANT L'ALLIAGE DE MAGNÉSIUM

Publication  
**EP 4198148 A1 20230621 (EN)**

Application  
**EP 22190682 A 20220817**

Priority  
CN 202111536766 A 20211216

Abstract (en)  
A high-speed spinning magnesium alloy and a preparation method thereof, the magnesium alloy has Mg-Al-Zn-Mn-Sr alloy with a high formability and high strength, and its chemical composition mass percentage is: Al: 2.4<sup>~</sup>4.5wt.%; Zn: 0.6<sup>~</sup>1.2wt.%; Mn: 0.4<sup>~</sup>0.6wt.%; Sr: 0.15<sup>~</sup>0.3wt.%; the balance is Mg. The present invention adopts the principle that by increasing the content of Mn in the magnesium alloy, a large amount of Mn-rich phase is generated during the alloy preparation process, and the degree of subcooling is controlled so that a fine spherical dispersed nano-scale Mn-rich phase is obtained during the solidification process. The nano-scale Mn-rich precipitate phase can pin the grain boundaries and inhibit the grain boundary migration to refine grains and achieve the effect of improving the strength. The divorced eutectic Mg<sub>17</sub>Al<sub>12</sub> phase generated during the casting process will deteriorate the structure, so Sr is added to the alloy, Sr combining with Al to suppress the coarse phase of divorced eutectic Mg<sub>17</sub>Al<sub>12</sub>, refine the grains, increase the amount of eutectic, and reduce the risk of thermal cracking of large-size cast bars. In addition, Sr weakens the texture during the high-temperature spinning forming process and reduces the risk of cracking during the spinning tension, which is beneficial to high-speed spinning forming.

IPC 8 full level  
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Citation (search report)

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